THE EFFECTS OF CRYOTHERAPY ON FUNCTIONAL PERFORMANCE TESTS IN RECREATIONAL PLAYERS

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ABSTRACT
Cryotherapy is not routinely used by athletes during competitive bouts. The degree to which proprioception is altered after cryotherapy is maximum. Aim of the study is to examine the effects of cryotherapy on maximal functional performance tests, after getting informed consent signed 10 subjects were asked to perform an warm up exercises and functional tests. Then they were treated with ice bag for 10 minutes.at the end of cryotherapy application, participants were asked to perform shuttle run test at the first minute and at10th minute of cryotherapy andthe results show that the performance of the participants has increased after application of cryotherapy. Thus it concludes that recreational players can resume strenuous activity immediately following cryotherapy treatment.
Key words: cryotherapy, proprioception, athletes, functional performance tests

I.INTRODUCTION

Cryotherapy is the local or general use of low temperatures in medical therapy. Cold application decreases the responsiveness of the neuromuscular system, including nerve conduction velocity and specific reflex activity.Various forms of cryotherapy application are used on a daily basis by therapist and athletes to injuries. Ice bag application, has been widely accepted as a means to control pain and to enhance movement Research has also demonstrated that muscular tissue temperature decreases after cryotherapy and continues to decrease even when the modality is removed[1]. In addition to the potential risk of injury, the effect of cryotherapy on functional performance is a relevant concern, especially if the athlete plans to return to practice or competition immediately after the treatment. Functional performance tests have been used to assess components of sport performance (strength, power, agility), determine readiness for return to sport, evaluate effectiveness of neuromuscular training interventions, and predict injury of the lower extremity. An advantage of functional tests are that they require minimal personnel, are quick to administer, and require only minimal equipment.[2]Although many aspects of cryotherapy have been studied, the results of studies on lower-extremity functional performance have been controversial[2-4]Therefore the purpose of this study was to find the performance of the functional performance tests after the application of cryotherapy.

II.METHODOLOGY

Convenient sampling method was employed andTotally 10 Patients are included in the study and the Recreational athletes of Age group 18-20 years were included and participants with
Hypersensitivity to cold, such as Raynaud's phenomenon,coldurticaria, Cardiac conditions. Hypertension, Neurological conditions of lower limbs, Musculoskeletal pathologies of lower limbs were excluded out of the study and the assessment parameter used is shuttle run test

Procedure

10 subjects were selected as per inclusion and exclusion criteria. An informed consent statement was obtained from them. An active warm up exercises was given to each of the participants. The warm up exercises consisted of jogging followed by stretching for 5 minutes. Three minutes of general stretching includes butterfly stretch for the inner thigh and groin, hamstring stretch, seated spinal twist for lower back and gluteal muscles, quadriceps muscle stretching and standing calf stretch for gastrocnemius and soleus muscle groups[8-10]. After warm up exercises the

participants were asked to perform shuttle run test with a 20-second rest period .participants has asked to perform 3 trials of run.. A 1-minute rest period was allowed between maximal functional tests. The values were taken and it was considered as pre- test values.An ice bag or crushed ice was employed as the cryotherapy modality in this study. Cryotherapy has aimed to cover the whole muscle bulk,A crepe bandage was used to enhance therapeutic effect of cryotherapy. Crushed ice or bag left in quadriceps for 10 minutes. The participants were instructed to perform shuttle run test at the first minute after the application of cryotherapy , which is documented as post-test1 and the same tests was asked to be repeated by the participants at the 10th minute, which is documented as post-test2.

III.DATA ANALYSIS

Data analysis made usingSPSS (version 18) software.

TABLE 1- SHOWS MEAN AND STANDARD DEVIATION OF AGILITY SHUTTLE RUN AT 1ST AND 10TH MINUTE

TEST	MEAN	STD.DEVIATION	t	df	Sig.
POST TEST 1ST MIN	-4.00600	0.95429	-23.622	20	0.0000
10TH MIN	-2.10000	0.64311	-15.458	20	0.0000

IV.RESULTS

The results show that the performance of the participants has increased after the application of cryotherapy

DISCUSSION

The effects of ice bag application to the anterior thigh on 2 measures of maximal functional performance were studied[5-6]. Each functional performance measures a different aspect of explosive power.The aim of this study is to examine the effect of ice application to anterior thigh on maximal functional performance tests and to determine the prolonged effect of ice application. In this study we used ice bag which was filled with crushed ice and it was placed on the anterior thigh for 10minutes.This study also helps the athletes to know when to return back on field after ice application. The results of this study indicated that a 10 minute, cold application treatment applied to the quadriceps had an immediate and subsequent impairment on functional performance.The pre and post test values were obtained by shuttle run. The post values were measured at first and tenth minute after the application of cryotherapy. The results show that increase in the performance at the tenth minute is not equal to the pre test results. The results of this study show that further research is needed to increase the interval for post test time and to find if the performance level returns to the normal as pre test values. Also this study was performed in the recreational athletes so further study can be done in the athletes who are on field and also it can be done in the injured athletes to determine their effect of performance following cryotherapy. More research can also be done to find the change in temperature at each minute after ice bag application[6.7].

CONCLUSION

The functional performance has increased after the application of cryotherapy to quadriceps for 10 minutes. And at the tenth minute the performance has increased .Further studies are needed to validate in returning athletes to strenuous activity immediately following cryotherapy treatment.

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